



STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

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September 10, 2020

20-NWP-154

Brian T. Vance, Manager  
Office of River Protection  
United States Department of Energy  
PO Box 450, MSIN: H6-60  
Richland, Washington 99352

Re: Waste Management Area (WMA) A/AX Integration Study Outline

Dear Brian T. Vance:

The Department of Ecology (Ecology) appreciates the United States Department of Energy (USDOE) commitment to meet the requirements of Milestone M-045-97, "Submit to Ecology as a Primary Document, a Waste Management Area Integration Study for WMA A/AX, as described in HFFACO Appendix I, 2.1.1," due September 30, 2021.

This letter communicates our minimum expectations for the Waste Management Area Integration Study for WMA A/AX in order to maximize the efficiency of the review and approval process. The enclosed outline provides a detailed description of the elements necessary to meet *Hanford Facility Agreement and Consent Order* Appendix I requirements.

Based on lessons learned from the WMA-C closure effort, Ecology wants to make appropriate clarifications for the evaluation of WMA-A/AX. The *Waste Management Area Integration Study – Waste Management Area C* (RPP-PLAN-26062) was submitted as a Secondary Document, and USDOE has agreed that the A/AX Integration Study document will be submitted and revised, as necessary, as a primary document.

To highlight some of the areas to be included regarding activities necessary for integration with the Central Plateau, USDOE should describe how they will:

- Integrate Phase 1 of the *RCRA Facility Investigation Report for Hanford Single-Shell Tank Waste Management Areas* (DOE/ORP-2008-01, Rev. 0) and the *Hanford Site Groundwater Strategy* (DOE/RL-2002-59).
- Implement remedies for adjacent waste sites using a geographic approach that efficiently applies cleanup resources *Hanford Site Cleanup Completion Framework* (DOE/RL-2009-10, Rev 1, page 46).

Ecology would like to work with USDOE to better define and fulfill these objectives listed above.

Brian T. Vance  
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In an effort to ensure this primary document meets Ecology's minimum expectations, we prepared the enclosed draft outline of the document to guide its development. The outline is based on the WMA C Integration Study outline, and includes our particular concerns with regards to WMA A/AX closure. We expect the final outline of the document to include, but not be limited to, these important points.

Please review the enclosed outline and contact me at [jeff.lyon@ecy.wa.gov](mailto:jeff.lyon@ecy.wa.gov) or (509) 372-7914 if you have questions or concerns.

Sincerely,

Lyon, Jeffery  
(ECY)

Digitally signed by Lyon,  
Jeffery (ECY)  
Date: 2020.09.10 14:27:08  
-07'00'

Jeffery J. Lyon  
Tank Systems Operation and Closure Project Manager  
Nuclear Waste Program

kr/aa  
Enclosure

cc electronic w/enc.:

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Robert Hastings, USDOE-ORP  
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Jon Perry, MSA  
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Alex Smith, Ecology  
NWP RIM Coordinators, Ecology  
Environmental Portal  
Hanford Administrative Record  
Hanford Facility Operating Record  
MSA Correspondence Control  
USDOE-ORP Correspondence Control  
WRPS Correspondence Control

Ecology annotation of WMA A/AX Integration Study outline  
based on the  
WMA C Integration Study (RPP-PLAN-25062)

Ecology has annotated the table of contents (outline) of the WMA C Integration, where Ecology suggests revisions (changes or additions) to the WMA C Study.

Annotation is shown in *italic* font.

S1.1 Overview of the WMA A/AX Integration Study

S1.2 Integration Planning Assumptions and Sequencing Bases

S1.3 WMA A/AX Sectors

S2.0 Integration with Central Plateau Closure

S2.1 Physical Boundaries and Interfaces

S2.2 Pipelines Interface and Disposition Strategy

S2.3 Interface with 200 Area Groundwater Decisions and Remediation

S3.0 WMA A/AX Barrier Configuration

S4.0 WMA A/AX Integrated Closure Timeline

*The RPP-PLAN-25062 included integration of operable unit designations that have been superseded. For WMA A/AX the schedule should be updated to include the current operable unit designations including 200-EA-1, 200-IS-1, 200-DV-1, 200-SW-1, and 200-BP-5/200-PO-1.*

*Include a more detailed project schedule showing not just the schedule for sector activities, but activities within the sectors (considering the sectors as sub-projects).*

1.0 Introduction

1.1 Purpose and Scope

1.2 WMA A/AX Background

2.0 WMA Study Area and Closure Strategy

2.1 Component Integration Logic

2.2 Develop a Conceptual Site Model for WMA A/AX

2.2.1 Use the CSM to identify data gaps

2.2.2 Prepare a Work Plan for RCRA Facility Investigation  
/Corrective Measures Study (Work Plan for RFI/CMS)

- 2.2.2.1 Include the CSM in the Work Plan for the RFI/CMS
- 2.2.2.2 Based on the CSM identify data gaps to be investigated during the RFI
- 2.2.2.3 Conduct DQO for site characterization to investigate data gaps identified in the CSM *This section should refer to a DQO and SAP for ancillary equipment. RPP-PLAN-25062 had a softer commitment that “DQO process will likely be undertaken.” This should include a plan to sample for residual PUREX waste.*
- 2.2.3 Conduct site characterization based on the DQO
- 2.2.4 Develop RFI report
  - 2.2.4.1 Include the CSM updated with the data collected during the site characterization
- 2.2.5 Develop the Corrective Measures Study report.
  - 2.2.5.1 Include the CSM updated with data collected during site characterization under the RFI

## 2.3 WMA A/AX Closure Sectors

## 3.0 Regulatory Setting

### 3.1 Drivers for Closure

- 3.1.1 HFFACO milestones
- 3.1.2 RCRA *change this to RCRA/HWMA*
- 3.1.3 RCRA Corrective Action Requirements
- 3.1.4 CERCLA Remedial Action Requirements
- 3.1.5 NEPA and SEPA
- 3.1.6 Atomic Energy Act of 1954

*The AEA is called out under the bulleted list in 3.1 in the WMA C Integration Study, but doesn't have a numbered sub-section in Section 3. It should be added because the AEA has a different closure performance standard, and a different closure performance period than RCRA and CERCLA.*

*3.1.7 Amended Consent Decree. Consent Decree would affect retrieval schedule, TWRWP requirements, and use of 3 technologies.*

### 3.2 Tank Closures and Waste Determinations

## 4.0 Closure/Remediation Sequencing

### 4.1 Regulatory Assumptions

### 4.2 Compliance with General Closure Performance Standards Based on Closure/Remediation Assumptions

#### 4.2.1 General Performance Standard #1

#### 4.2.2 General Performance Standard #2

#### 4.2.3 General Performance Standard #3

### 4.3 WMA A/AX Integrated Closure Section Sequence Approach

*Include description of all considered/available retrieval technologies, along with retrieval alternatives for “special problem tanks,” and plans for research and development of new retrieval technologies*

### 4.4 Isolation of Components

*4.4.1 Establish a waste inventory to be used in other WMA-A/AX evaluations. The inventory of waste in the SST components may be significant and require sampling.*

*4.4.2 Some of the SST components associated with WMA-A/AX are located outside the fence line, but have been considered a part of the system and may need to be included in the WMA for purposes of characterization, performance evaluations, and closure decision-making.*

### 4.5 Tank Waste Retrieval Risk Assessments and WMA Performance Assessments

### 4.6 Decommissioning, Decontamination and Dismantlement

## WMA A/AX Component Closure Regulatory Pathways to Closure

*Describe all available retrieval technologies, retrieval alternatives for “special problem tanks,” and plans for research and development of new retrieval technologies*

### 4.7 Sector N Sequencing

*Note, for the sector including A-105, establish retrieval methods that take into account the uncertainty of effective removal. For A-105 the waste content in both above and below the liner, will have significant effects on the long-term impacts from waste left in place in the WMA.*

#### 4.7.1 Approach

#### 4.7.2 Waste Retrieval

#### 4.7.3 Waste Characterization

4.7.4 Post-Retrieval Isolation and Activities

4.7.5 Vadose Zone Monitoring/Drywell Decommissioning

4.7.6 Integration

4.7.7 Status

4.8 Sector N+1 Sequencing

4.9 Section N+2 Sequencing

*continues with additional sectors until all sectors are addressed*

5.0 Integration with Vadose Zone/Soil

5.1 Integration of the WMA A/AX Component Closure Process

5.1.1. Status of Current Soil Component Closure Activities

5.2.1 Approach to Remaining Soil Component Closure Activities

6.0 Integration with Central Plateau

6.1 Physical Boundaries and Interfaces

6.1.1 *Describe nearby past-practice soil sites included in various operable units: 200-EA-1, 200-IS-1, 200-SW-2, 200-MG-2*

6.1.2 *Describe the 200-DV-1 operable unit and near-by waste sites. Describe the treatability study for 200-DV-1 and its potential applicability of tested technologies to remediation of WMA A/AX soils.*

6.2 Pipeline Interface and Disposition Strategy

6.3 Interface with 200 Area Groundwater Decisions and Remediation

*List the different closure performance periods for the different regulatory drivers, and the different closure performance standards for each:*

- *RCRA/HWMA post-closure monitoring of 500 years (presumed based on Ecology 2012 Hanford permit condition V.4.G.2.c.ii)*
  - *Closure performance standard of  $1 \times 10^{-5}$  cumulative and  $1 \times 10^{-6}$  for individual contaminants based on MTCA as an ARAR*
- *CERCLA groundwater remedy duration of 125 years (prototypical based on 200-ZP-1 Record of Decision) or 300 years (based on Tri-Party response to HAB Advice #132)*
  - *Risk range of  $10^{-4}$  to  $10^{-6}$  and groundwater dose of 4 mrem based on Federal drinking water standards as ARARs*
- *AEA 1000 years (based on DOE 435.1)*

- *25 mrem/yr dose to the general public and 100 mrem/yr to an intruder post 100-year Institutional Control period*

*List the different points of compliance for the different regulatory drivers:*

- *RCRA/HWMA at the downgradient boundary of the WMA, or as otherwise established by Ecology*
- *CERCLA, throughout the contaminated plume (per MTCA as an ARAR)*
- *AEA, the point of highest projected dose or concentration beyond a 100 meter buffer zone surrounding the WMA*

*Cumulative Impact Evaluation (CIE)*

- *Describe the Cumulative Impact Evaluation.*
- *Describe how the WMA A/AX PA results will be integrated into the CIE*
- *Describe how that the CIE results will be provide at each of the Points of Compliance listed above, for each of the Closure Performance Standards listed above, for each of the closure performance periods listed above*

## 7.0 Closure Configuration and Design Issues

### 7.1 Final WMA A/AX Status for Barrier Placement

### 7.2 Final Barrier Design Criteria

## 8.0 Post-Closure

## 9.0 References